

ABSTRACT OF THE DISCLOSURE

A superconducting integrated circuit includes a substrate, a multilayer structure formed on the substrate and composed of a lower superconducting electrode, a tunnel barrier and an upper superconducting electrode sequentially joined together upward in the order mentioned, and an insulating layer perforated to form via holes to get electrical contacts with the lower and upper electrodes. The insulating layer is formed of a high-resolution, photosensitive, solvent-soluble, organic insulating material. The superconducting integrated circuit is produced by a method that includes the steps of depositing the multilayer on the substrate, applying the insulating material to the front surface of the substrate inclusive of the multilayer, forming the via holes in the insulating material by the lithographic technique at the prospective positions to get electrical contacts with the upper and lower electrodes, and laying wirings for connecting the upper and lower electrodes through the via holes.